



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,631	07/15/2004	Peter Edward James Abbott	JMYS-117US	4886
23122	7590	09/30/2005	EXAMINER	
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			PARSA, JAFAR F	
			ART UNIT	PAPER NUMBER

1621

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,631

Applicant(s)

ABBOTT ET AL.

Examiner

Jafar Parsa

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 6-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/15/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election with traverse of Group I, claims 1-5 in the reply filed on 9/12/2005 is acknowledged. The traversal is on the ground(s) that applicants submit that the steps of compression and combustion of the tail gas using a gas turbine are corresponding special technical features shared between these claims and that therefore the requirement for restriction is traversed. This is not found persuasive because the combustion of the tail gas using a gas turbine is disclosed in US patent No. 6,172,124 (see summary of the invention). Therefore there is no special technical feature that links the Group I and 11 together.

The requirement is still deemed proper and is therefore made FINAL.

2. The following headings are required for a utility application under 37 CFR 1.77(b)

- a) title of the invention,
- b) cross-reference to related application,
- c) background of the invention,
- d) summary of the invention,
- g) brief description of drawings, and
- h) detailed description of the invention.

Appropriate corrections are required.

Specification

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/09441 (Abbott).

Applicants' claimed invention is relates to a process for the production of hydrocarbons by the Fischer-Tropsch reaction comprising;

subjecting a mixture of a gaseous desulfurized hydrocarbon feedstock and steam to steam reforming by: passing the mixture over a catalyst disposed in heated tubes in a heat exchange reformer, subjecting the resultant primary reformed gas to secondary reforming by partially combusting the primary reformed gas with oxygen provided by an oxygen-rich gas comprising >90% oxygen and bringing the resultant partially combusted gas towards equilibrium over a secondary reforming catalyst, and using the resultant secondary reformed gas to heat the tubes of the heat exchange

Art Unit: 1621

reformer, thereby producing a partially cooled reformed gas, further cooling the partially cooled reformed gas to below the dew point of the steam therein to condense water and separating condensed water to give a de-watered synthesis gas, passing said de-watered synthesis gas through a hydrocarbon synthesis reaction to form a reaction products stream, separating at least a part of said reaction products stream into a hydrocarbons product Stream and a tail gas stream, combusting at least a part of said tail gas to produce a combustion gas, and using said combustion gas to drive a turbine, thereby to produce power from said turbine.

Abbott teaches a production of synthesis gas for use for synthesizing carbon-containing compounds, typically having a hydrogen to carbon monoxide molar ratio of about 2 and a low carbon dioxide content, by primary reforming a gaseous mixture containing hydrocarbons, 0.6 to 2 moles of steam per gram atom of hydrocarbon and 0.2 to 0.6 moles of recycled carbon dioxide per gram atom of hydrocarbon, in a heat exchange reformer and then secondary reforming the resultant primary reformed gas, heating the heat exchange reformer with the resultant secondary reformed gas; cooling and condensing steam from the secondary reformed gas to give a de-watered gas stream having a carbon dioxide content below 20% by volume. The recycled carbon dioxide is recovered from the de-watered gas stream, before or after use thereof for the synthesis reaction (see abstract).

The difference between Abbott and the claimed invention is that in claim 1 at least part of the tail gas is combusted and the combustion gas used in a turbine, whereas in the Abbott reference the tail gas is recycled to the reformer. However,

Art Unit: 1621

Wolfick in a process for converting gas to liquid teaches that Fischer-Tropsch tail gas contains sufficient energy to combust it and pass it through a turbine (see col. 2, lines 5-20). It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to use an available stream which is known to contain energy by combusting part of the tail gas to drive a turbine as taught by Wolfick et al.

The claims further differ in using air separation unit to provide an oxygen rich gas for combusting the primary reformed gas. However, Van Dijk discloses a process for the separation of oxygen from air integrated with the production of synthesis gas, followed by a Fischer-Tropsch conversion (see col. 19, lines 10-25). It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to use an oxygen rich gas stream because if other than substantially pure oxygen is used, diluants in the air (e.g., N_2) will require the use of a much larger reactor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

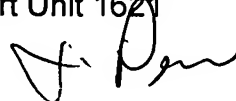
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571)272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP

Jafar Parsa
Primary Examiner
Art Unit 1621



J. PARSA
PRIMARY EXAMINER